Owner's Manual & Installation Instructions

Zone Comfort™
hot water air handler
and zoned distribution system
with iStat6 electronic controller for 2 to 4 zones

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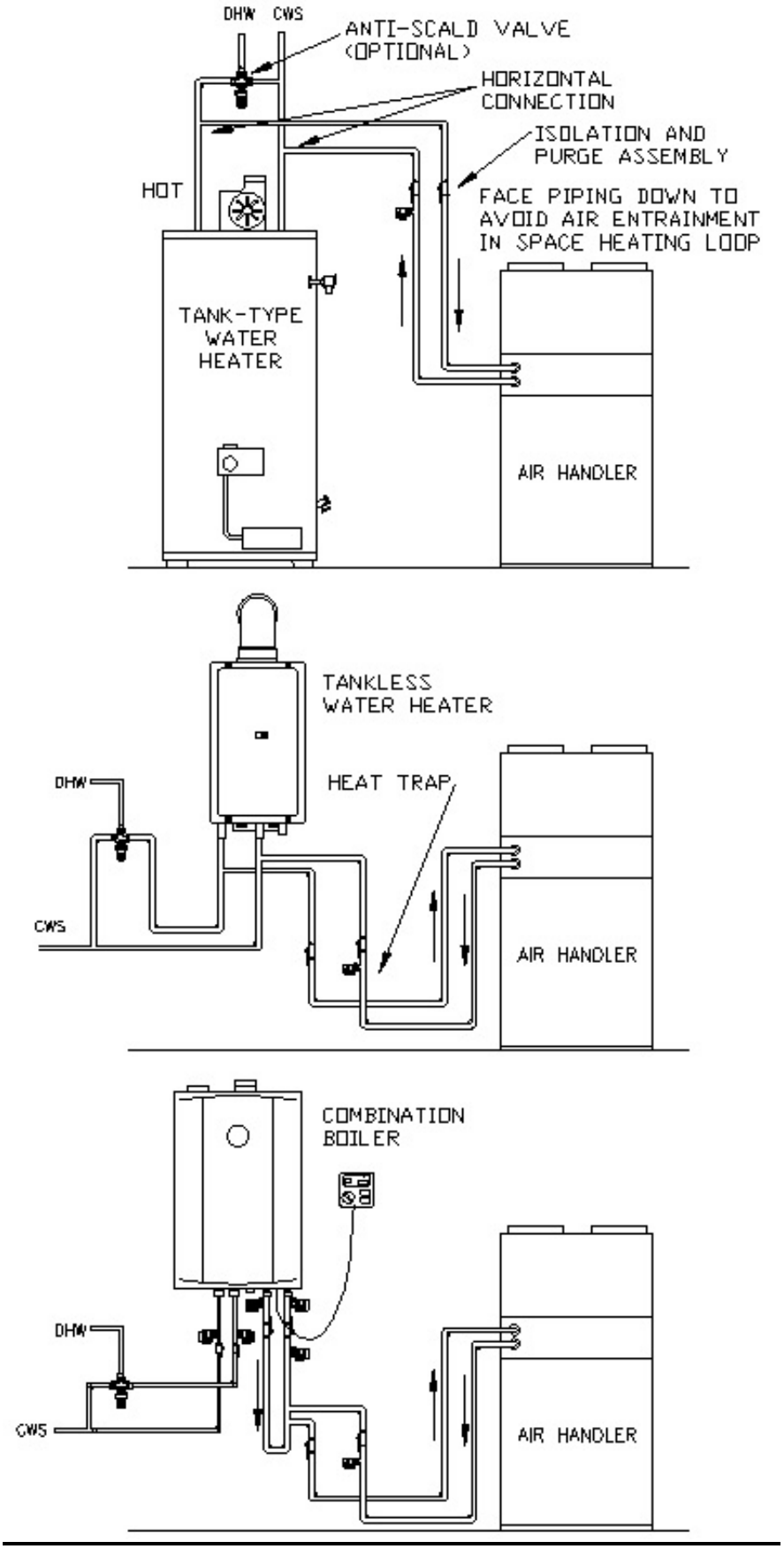
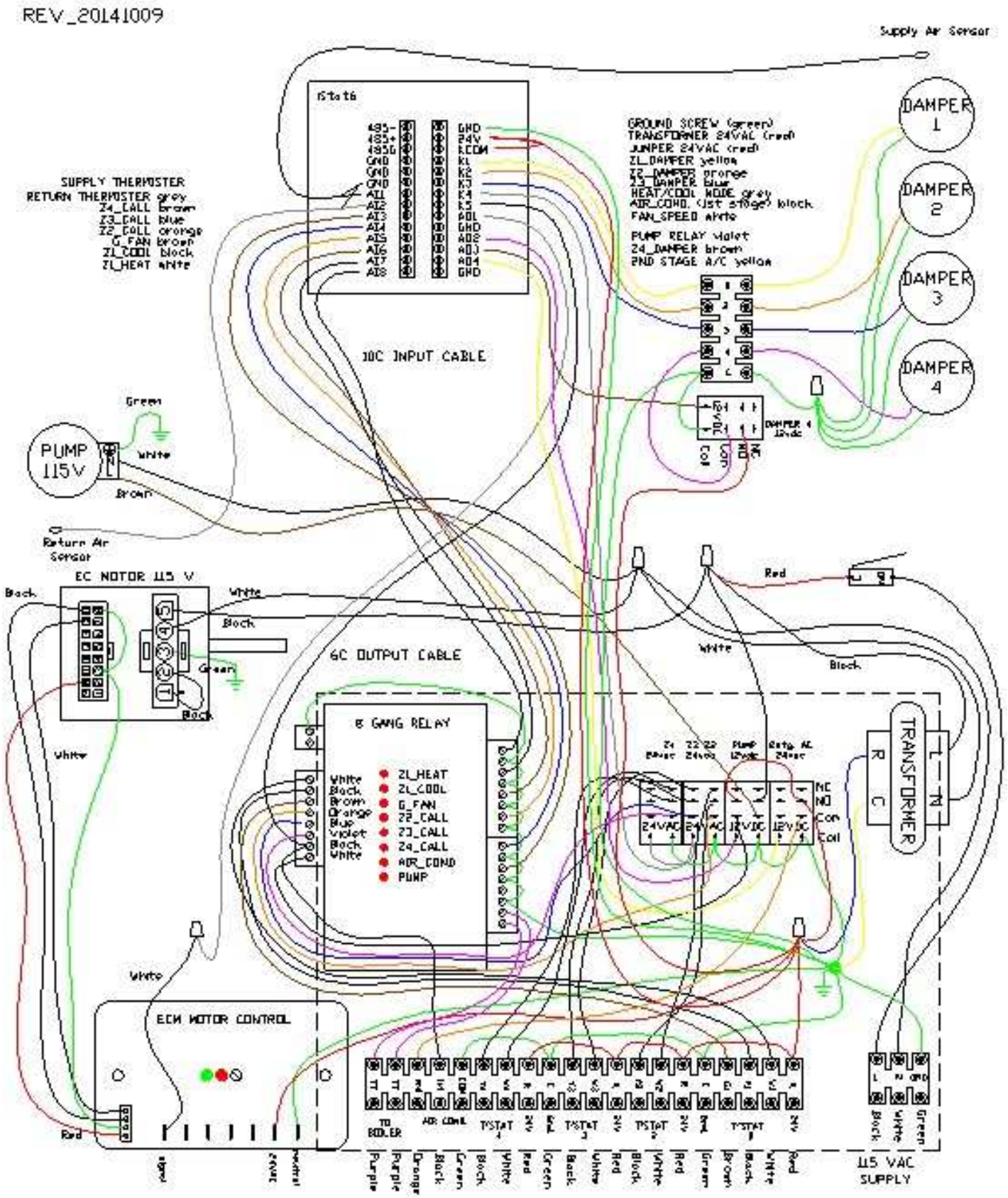
CHECKLIST FOR THE INSTALLER

☑	**A Quick Check List**
☐	Are the water connections to the water heater oriented in a way to avoid trapping air in the heating circuit? (see diagram on next page)
☐	Is the purge valve installed on the return water line from the air handler upstream from the isolation valve?
☐	Is the air handler hung and isolated to avoid transmitting vibration through framing and duct work?
☐	Are the isolation valves full-port? Restrictive valves will limit performance.
☐	Is outdoor cooling unit contactor wired according to the wiring diagram?
☐	Are Thermostat connections correct, including cooling and continuous run connections? Do they operate their intended zone?
☐	Have the packing materials been removed from the blower and the pump ?
☐	Is there an installation manual and controls user manual for the home owner ?
☐	Is the unit accessible? Are there clearances for service and component replacement?
☐	Is the return duct/drop acoustically lined ? (at least 6 ft. of the return duct/drop must be lined)
☐	Is the filter cover in place? Is a clean filter in place? Is the supplied filter rack installed?
☐	Has the electronic controller been properly configured as per instructions in the controls user manual?

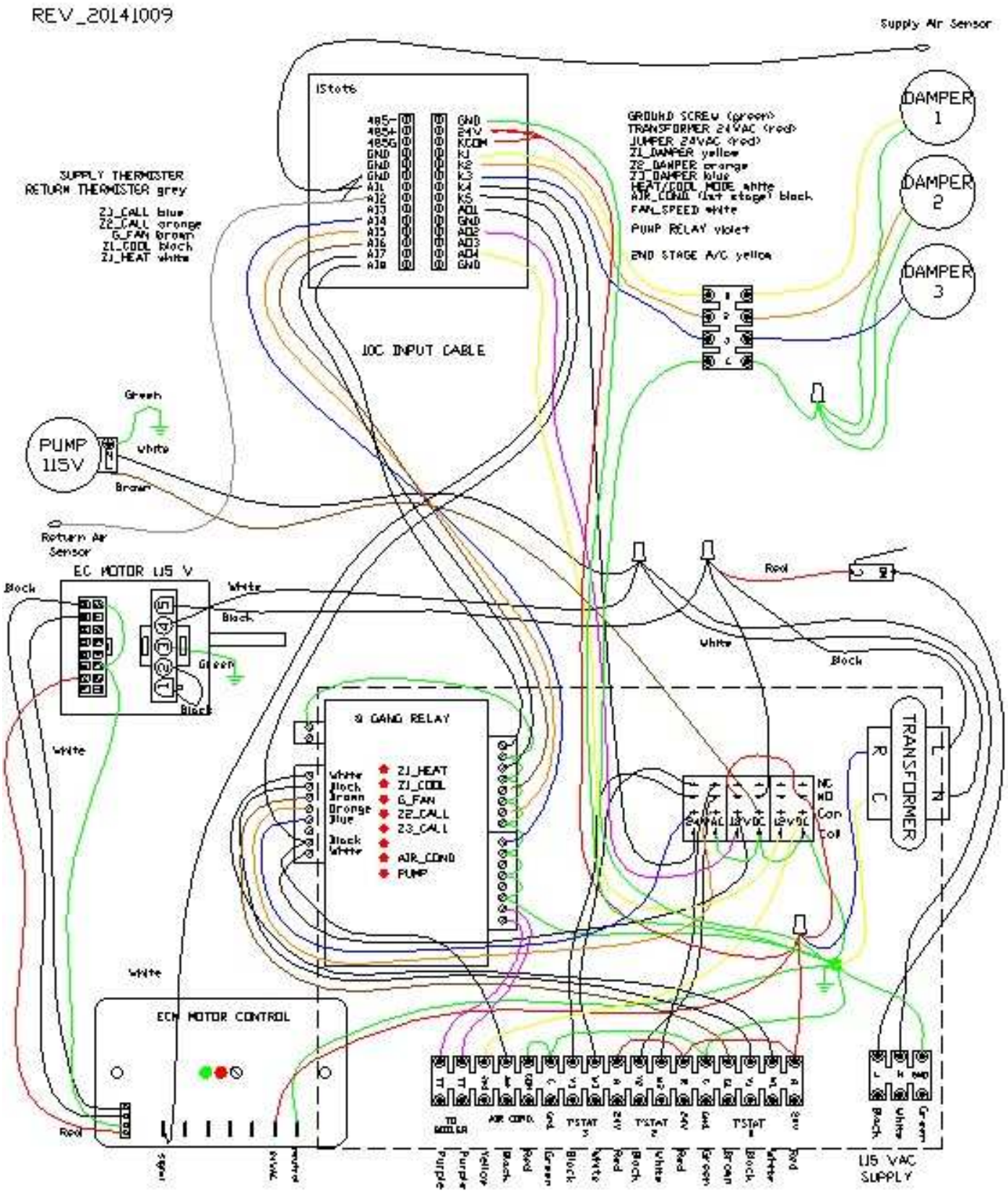
TYPICAL PLUMBING CONNECTIONS



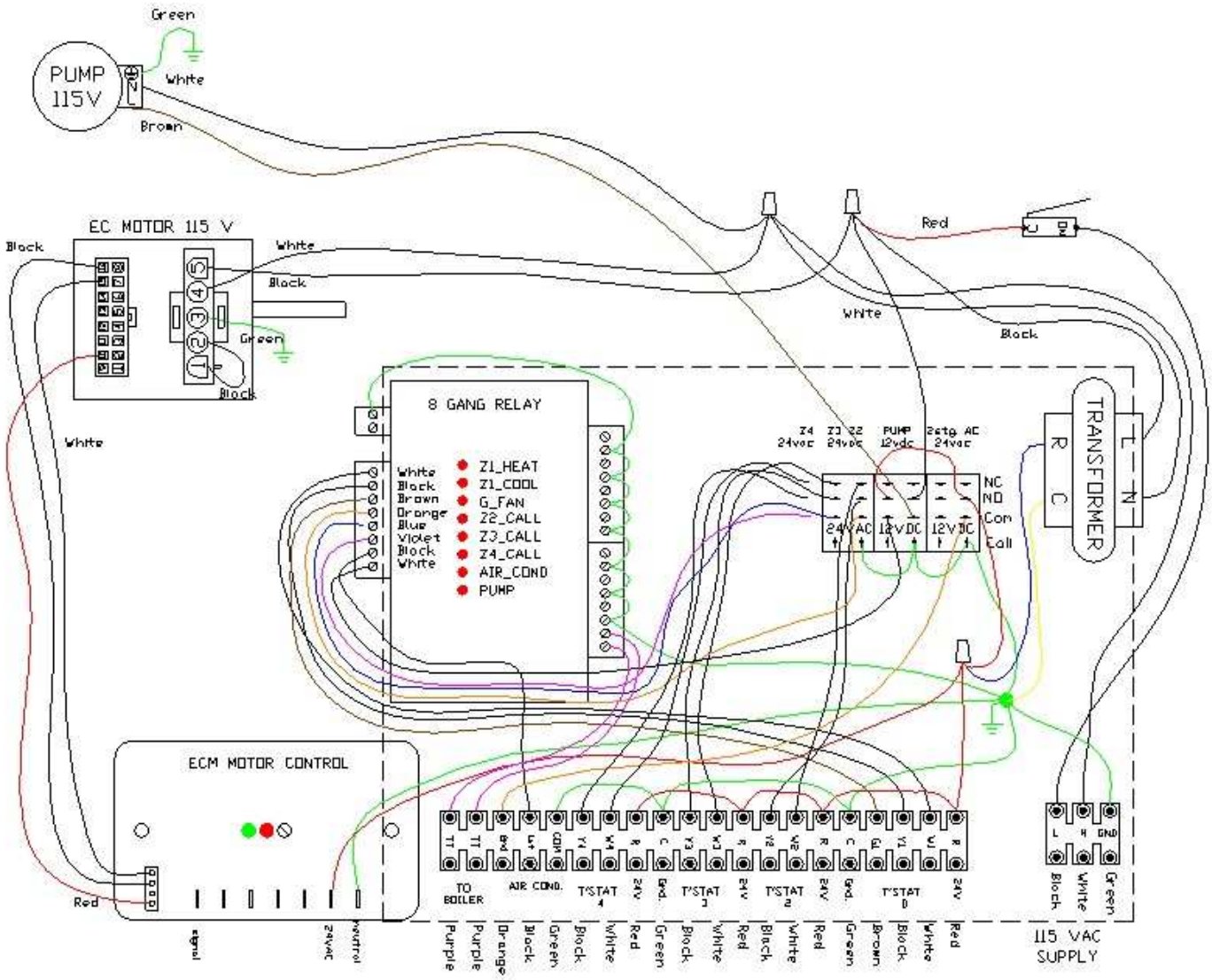
ELECTRICAL WIRING DIAGRAM – 4 Zone complete



ELECTRICAL WIRING DIAGRAM – 3 Zone complete



ELECTRICAL WIRING DIAGRAM – 4 Zone base



Contact Vortex for wiring diagrams for Zone Comfort™ systems with more than 4 zones.

EQUIPMENT SPECIFICATIONS AND SIZING TABLES

REFER TO Small-D design Guide for additional duct sizing options.
TABLE 1 - Air Handler Selection Table

Model	ZC24, ZC30, ZCT24, ZCT30	ZC36 ZCT36	ZC42 ZCT42	ZC48, ZC60 ZCT48, ZCT60	ZC100
Minimum Branches per Zone	10	12	14	20	23
Heating Capacity[1] (Btu/h)@130ºF	56,000	61,000	61,000	71,000	91,000
Heating Capacity[1] (Btu/h)@140ºF	60,000	66,000	66,000	77,000	106,000
Heating Capacity[1] (Btu/h)@160ºF	77,000	85,000	85,000	100,000	135,000
Heating Capacity[1] (Btu/h)@180ºF	95,000	104,000	104,000	122,000	164,000
Air flow rate at full heating (cfm)	1200	1400	1400	1800	1800
USGPM Heating	4.8	4.8	4.8	4.8	7.0
Cooling Capacity [2,3] (Tons)	2.5	3.0	3.5	5.0	5.0
Blower Motor Full Load (Amps)	5.5	7.7	7.7	9.6	9.6
Circulator Full Load (Amps)	0.8	0.8	0.8	0.8	1.4
Cabinet Width (in.)	22	22	22	22	22
Cabinet Depth (in.)	25	25	25	25	25
Cabinet Height (in.) (Regular ZC)	44	44	44	44	65
Cabinet Height (in.) (Tall ZCT)	65	65	65	65	N/A
Supply Air (Zone Dampers)	3x8”Φ	3x8”Φ	3x10”Φ	3x10”Φ	3x10”Φ
Return air (in.)	18x23	18x23	18x23	18x23	18x23
Supply and Return Water Connections (in.)	3/4	3/4	3/4	3/4	1
Weight-air handler only (pounds)	150	155	170	175	200

Notes:

1. Heating capacity based on 70ºF return air, high speed and 12.5 feet length per branch at 3” diameter

2. Regular ZC requires horizontal slab cooling coil (extra) model HC2018TX410 for up to 3 tons. 3.5 ton and above require horizontal slab coil by others.

3. Tall ZCT can use cooling A-coil supplied by others. Cabinet opening is 20W x 24D x 21H.

INTRODUCTION

The **Zone Comfort™** system is a heating and cooling system that enhances comfort and improves efficiency by giving more control over the distribution of conditioned air. Homeowners enjoy many benefits such as healthy indoor air, comfortable basements and cool summer evenings. Multiple thermostats provide the means to zone the home by section or level in order to gain more control. This will virtually eliminate over or under conditioned spaces as is common in a lot of homes today.

The **Zone Comfort™** system is designed for use in hydronic (boiler) systems or combination space and water heating systems (Combo Systems). Combo heating systems use the home's water heater to provide both the space heating and domestic hot water, eliminating the need for a furnace. The equipment can be configured for heating only, heating and cooling or cooling only applications.

Contact Vortex for **Zone Comfort™** systems to be connected to a heat pump.

The **Zone Comfort™** duct system can be much smaller than conventional ducting making it ideal for retrofit applications or where a conventional duct system would result in unsightly bulkheads and wasted space.

When used as the warm air distributor of a boiler heating system the **Zone Comfort™** air system can provide warmer more comfortable air temperature than a gas furnace with less noise and much smaller duct requirements. This is ideal for large custom homes where a premium heating product is required that is quiet, comfortable and out of sight.

Controls usage and settings are covered in a separate document.

HOW IT WORKS

The key to the Zone Comfort™ system is the level of comfort and efficiency provided by the unique control system. Zone dampers in the air handler operate to increase or decrease the capacity in each zone of the house as needed.

The controller employs the ***Quiet Comfort*** control strategy in order to have the capacity of the air handler meet the needs or load of the space as closely as possible. This means that the blower does not run on high speed each time the room thermostat calls for heat, rather the air handler dynamically adjusts its capacity. The air handler runs quietly, at lower speeds, for the majority of the time.

This cutting edge approach reduces fan energy requirements, promotes better blending of the room air and less stratification within the living space.

Cooling mode uses a modulating strategy to maximize homeowner comfort. Blower speed is carefully controlled to optimize dehumidification. When cooling demand is low (determined based on the number of zones calling or on the measured supply air temperature) the blower runs a little

slower. The air has more residence time in the evaporator coil. This results in removing more moisture from the air, thus maintaining the humidity in an optimum range.

Zone One
The primary or master or zone one tells the air handler whether it is heating season or cooling season or if continuous air circulation is desired. Any zone can be zone one but it is typically the main area of the building (living area).

Additional zones act as slaves to the primary zone. **The primary zone must call for heating or cooling at least once at the beginning of the season to tell the Zone Comfort air handler that it is in heating mode or cooling mode. The switch on the primary thermostat is not enough! There must also be at least one call for heating or cooling (a short, 5 second call is adequate).** Until this happens, a call on zone two or three is ignored.

Off
All zone dampers are open if there is no call for heating or cooling or power is off.

Heating
The objective of the heating strategy is to run the blower only as high as required, in order to provide good air circulation at a low noise level. Because the blower speed can be programmed to adjust based on each zone's actual heating loads, the fan will only run as high as necessary to satisfy the current calls.

When a thermostat calls for heating, the internal pump starts and the boiler is activated (if connected to TT). The zone damper for any zone not requiring heat closes. The fan will gradually ramp up to the programmed speed for the given zone.

Cooling
When a thermostat calls for cooling, the outdoor air conditioning condenser is activated. The zone damper for any zone not requiring cooling closes. Fan speed can be controlled based on number of zones calling and their programmed cooling loads, or on measured supply air temperature. **Two-stage air conditioners are strongly recommended as a means of improving efficiency, lowering fan speed for single zone calls and more closely matching AC output to the home's cooling requirements.**

Continuous Fan
When the thermostat fan switch for the primary zone is set to continuous fan, the fan will run at the set speed for all zones. When there is a call for heating or cooling, the normal heating or cooling speed will over-ride the continuous fan setting. Zones not requiring heating or cooling will close. Once the thermostat is satisfied, continuous fan speed will resume.

Features
Vortex air handlers offer many unique features that set them apart from the competition:

Soft Start is a feature that starts the fan slowly and quietly rather than a large "thump" common in some furnaces and air handlers.

Evaporator Coil Freeze Protection
If the evaporator coil air temperature drops outside of the expected operating range this indicates a potential evaporator coil freeze condition. Coil freezing can lead to slugging (liquid

refrigerant going back to the compressor) which will damage the compressor. All Zone Comforts come equipped with a sensor and controller which will respond by shutting off the outdoor cooling unit to allow the system to warm up. Note that this freeze condition is not normal and may indicate blocked ducts, dirty filter or an over-sized cooling unit.

PRODUCT DESCRIPTION

Cabinet

All cabinets have a tough, durable low maintenance painted finish.

Cabinet dimensions are designed to provide maximum installation flexibility. Refer to installation requirements for more details.

Heating coils

All heating coils are potable water grade copper suitable for use in plumbing systems. No lead solder is used in any component construction. All coils and internal piping conform to ASTM B68 or ASTM B88 standards.

High-density aluminum fins provide maximum heat transfer for small coil surface.

Fan and Motor

All fans are wide body dynamically balanced for extra quiet operation. Multi-directional sleeve bearing motors allow mounting in any direction for maximum installation flexibility.

Circulating pump

The circulating pump is matched for maximum performance. Air handlers come with internally mounted pumps for ease of installation. Air handlers can be special ordered with external, field installed pumps, when it is desirable to locate the circulator below the air handler, such as in attic installations.

Check Valve

Check valves serve two purposes:

- protect against back-flow of water to avoid short circuiting around the water heater during domestic water use.
- protect against thermal siphoning.

Thermal siphoning is flow of water through the space heating circuit while the circulating pump is not operating, due to hot water rising by natural convection. During summer months this will cause overheating, interfere with air conditioning and waste energy.

All Vortex air systems come supplied with spring-loaded check valves. The check valve may be integral with the pump. These check-valves have been tested and proven to resist thermal siphoning for installations where the air handler elevation does not exceed the distance above the water heater shown in the table below.

valve size	Maximum elevation
1/2”(12mm)	25 feet(8 metres)
3/4”(20mm)	50 feet(15 metres)

EQUIPMENT SIZING AND SELECTION

Procedure

1. Conduct a complete heat loss / heat gain calculation.
2. Determine inlet water temperature
3. Select Air Handler
4. Determine three zones within the space
5. Select # outlets per room
6. Determine Duct Layout

Heat Loss / Heat Gain

Room by room calculations need to be completed using HRAI, ASHRAE, or another approved sizing methods.

Air Handler Selection

The selected air handler must be sized according to the following rules:

a) Heating capacity must be between 100% and 140% of the heat loss. *(110% to 140% for combo systems @ 130°F water temp)*
b) Cooling capacity must be between 75-100% of the heat gain. Note that slightly under-sizing the cooling equipment improves efficiency and provides better humidity control.

When using a boiler system, select a boiler with an output that meets or exceeds the heat loss of the space being heated. If the boiler is serving additional loads, size the boiler to meet the total combined load.

For combo heating systems, use an approved sizing method such as the Unified Combo Guidelines published by HRAI.

Define Zones

The space served by the air handler should be divided up into zones. Three is tyical. Each of these zones is to be served by a single main duct by the air handler. Zones can represent areas such as the basement, main floor and second floor. In some applications, it may be desirable to divide the area in to east facing, west facing and basement zones depending on solar gain. Zoning based on usage is also acceptable: office, living and sleeping areas for example.

INSTALLATION

The installer must adhere strictly to all local and national code requirements pertaining to the installation of this equipment. Detailed instructions are shipped with all accessory items and should be followed closely.

Air Handler Mounting

The Zone Control air handler can be installed in any direction. Some precautions must be observed for some of the possible mounting positions. For installations where the access door faces up or down, select an air handler with an external pump to avoid the pump being mounted with its shaft vertical. The pump shaft must be mounted horizontally to avoid premature failure.

The air handler can be hung by securing straps through any of the existing screw holes in the cabinet. When the existing screw is too short for securing a mounting strap, a longer screw can be used provided care is taken not to damage any internal components. When fastening straps using screws other than those supplied with the cabinet, special care should be taken in the vicinity of the coil to avoid tube puncture.

The cabinet is designed so that the return air can be located on either side of the cabinet, through the bottom of the cabinet, or from the back. Position the filter rack so that the filter is readily accessible.

Install the air handler with the door firmly screwed in place to make sure the cabinet remains square.

Provide at least 2 feet (0.75 metres) of service clearance in front of the access panel of the air handler. Zero clearance is acceptable on all other faces.

Ductwork

Zone Comfort air handlers are suitable for conventional ductwork or small D systems.

Duct selection for each zone should be based upon ease of installing ductwork. Final assignment of zones can be done by changing zone damper wires on the terminal strip in the top section of the air handler. Duct connections at the air handler should be labeled for future reference (eg. bsmt, main, upstairs).

Supply trunks may be square or round. SEAL all joints and seams with metal tape or sealing compound. Locate outlets at least 6 inches from outside walls or window coverings. One 25 ft length of flex duct will provide two 12.5ft branches

Use only Class 1 flex duct or duct connector. All vertical portions of branch connections (such as to high wall grilles) must be rigid duct. Flexible duct may only be used in horizontal portions of the branch.

Return air plenum should be the same cross sectional area as the air handler return air opening. In vertical installations, a conventional return air drop and elbow is acceptable.

Ductwork installed in unheated spaces such as attics must be installed between the insulation and the heated space. Provide at least R-12 of insulation above

ducts. If cooling is required, the branch and trunk lines must be insulated and sealed with a vapour barrier prior to applying house insulation.

Risk of Freezing

Steps must be taken to prevent the hot water coil from freezing. Coils that have failed due to freezing and damage caused by frozen coils are not covered under warranty.

HRV and Fresh air connections
If a fresh air duct is required, make connection to return air plenum at least 18 inches from filter. Insulate all fresh air ducts.

Fresh air and HRV connections to ductwork can pose a risk of dumping cold air into ductwork during periods of stand-by or continuous run. Calculate mixed air stream temperatures and provide interlock controls to prevent freezing conditions.

Evaporator coils
The Zone Comfort is designed to provide acceptable airflow for cooling even if only one zone is operating in cooling mode. However, a small, single-zone operating for a long time or abnormal conditions such as plugged filter can pose the risk of freezing. All Zone Comforts with electronic controls include a temperature sensor that will detect a near freezing condition and will interrupt the outdoor air conditioner until it warms up. (Refer to Controls User Manual).

Attic and crawl spaces
Air handlers may be located in areas subject to freezing conditions. It is necessary to protect the hot water coil from freezing. The optional Freeze protection kit (Catalogue No. CP-FPK) can be used to cycle on the pump and blower when conditions get close to freezing. The Freeze Protection Kit cannot protect piping that passes through unconditioned spaces

ELECTRICAL

Warning! - Make sure unit is properly grounded. Locate air handler on a separate electric circuit.

All air handlers operate on 115VAC/1ph/60hz line voltage. All control circuits are low voltage, either 24VAC or 0-10VDC.

Thermostat

The **Zone Comfort™** air handlers are compatible with most thermostats. Some electronic thermostats (primarily “power robbing” types) require the addition of a resistor between the W & C terminals and the Y & C terminals. This is usually covered in the thermostat instruction manual. A 1,000 ohm, 5 watt resistor on each of the W and Y terminals will usually be enough to drain the current required to power the thermostat. Some thermostats will need 250 ohm, 10 watt resistors on each of the W and Y terminals.

Any zone with cooling will require a heat/cool thermostat. The **Zone Comfort™** air handler is compatible with

all standard setback thermostats. Setback thermostats can be used to achieve greater energy savings. Two-stage thermostats are not required with two-stage air conditioning. The Zone Comfort™ will determine when to bring on second stage cooling based on total building demand.

Heat Anticipator Setting

For optimum comfort the anticipator setting should be set to provide approximately 4 cycles per hour

Typical Heat Anticipator Setting	**0.25 amps**

Note: The wires from each thermostat should be labeled for future reference. Label suggestions are: 1, 2, 3, 4 or bsmt., main, upstairs. If labels are not available, use one, two or three "stripes" of tape.

Thermostat wires should be connected to terminal strip inside the air handler. Each zone has its own terminal for R. W1, W2, and W3 represent heating for zone 1, 2, 3, 4. Y1, Y2, Y3, Y4 represents cooling for zone 1, 2, 3, 4. Only G from the primary thermostat should be connected to the air handler. Thermostats with a C terminal should be connected.

Dehumidistat

Dehumidistats are not necessary, as dehumidification may be achieved through Zone Comfort's automatic control of cooling speed. Refer to Controls User Manual for more details.

Zone Selection & Set-up

Zone 1:

Any zone can be the primary zone or Zone One. However, it is strongly recommended that this be the main zone to be heated and cooled. In a home, this is typically the main living area. This thermostat is the only one that is used to select continuous fan operation. It also plays a critical role in telling the air handler whether to be in heating mode or cooling mode.

When initially started or during seasonal changeover from heating/cooling, this thermostat must call at least once before the air handler control will properly recognize a heating or cooling call from the other zones.

Other Zones (2,3,4):
These zones are the same and any area to be heated and/or cooled can be selected as zone 2, 3 or 4.

Duct/Zone Connections to Air Handler:
The 6"/8"/10" round duct connections on top of the air handler are labeled zone 1, 2, 3 and 4. The colours yellow, orange, blue and violet correspond to the wire colours connecting them to the air handler control. **NOTE: THESE ARE FACTORY DEFAULT ZONE SELECTIONS AND THE INSTALLATING CONTRACTOR CAN REASSIGN ANY DUCT CONNECTIONS ON TOP OF THE AIR HANDLER ZONE ONE, TWO, THREE OR FOUR.**

To change duct connection assignments, change the wires connected to the bottom of the terminal block.
The output is as follows: thermostat #1 = Yellow, #2 = Orange, #3 = Blue, #4 = Violet. The factory default is for the same coloured wires connected to the dampers and labeled zones 1, 2, 3 and

4. The colour labels on top of the air handler correspond to the wire colours to the damper. For example, to reassign the blue duct connection to thermostat #1, and yellow duct connection to thermostat #3, reverse the yellow and blue wires on the terminal block.

START-UP PROCEDURE

Do not start the air handler or water heater until ALL air has been purged!

1. Fill the boiler loop or water heater with water, but do not start it.
2. Purge all air from the boiler heating or domestic water system.
3. Purge all air from the space-heating loop by closing the isolation valve on the return leg of the loop and open the drain to purge air. Open the return leg isolation valve and then close the drain valve.
4. Start the boiler or water heater according to the manufacturer's instructions. Set the design water temperature and wait for the system to shut off. You can check that the water heater is set properly during the warm up by running a small amount of water into a glass in a sink while the water heater is warming up. Using a thermometer measure the temperature of the water as soon as the water heater burner shuts off. If the set-point temperature is too low or is above 140F/60C, reset the tank control, run water until the burner starts again and repeat the measurement.
5. Turn on the power to the air handler and set up the electronic controller as per instructions in the Controls User Manual. This is important to ensure that the correct airflows are used for the equipment as installed.
6. Set the room thermostat for heat to energize the fan and pump. If a gurgling sound is present, it should subside within one minute. If noise is still present after one minute, repeat step 3 to purge air as necessary.
7. Check pipes for heating to make sure there is flow and feel the pump motor to see if it is running hot.

SERVICE AND MAINTENANCE

Filter

The **Vortex** air handler is provided with a pleated filter media. This filter should be inspected monthly and replaced as required. Replacement filters are available from Vortex.

Duct cleaning

If proper filter maintenance is adhered to, duct cleaning will not be required for the life of the equipment.

Coils

Air conditioning and heating coils should not require cleaning if the filter maintenance schedule is adhered to. If a filter is damaged or collapses from plugging, dust may foul the coils. If this happens, replace the filter and carefully vacuum the heating coil. The fan may need to be removed to gain access to the face of the heating coil.

Air conditioning coil

At the start of each cooling season, check the drain connection to the cooling coil to ensure it is free of debris. If a plugged air conditioning coil is suspected, call a service technician for testing and cleaning

Fan and motor

Check fan for dust once a year. If dirty, vacuum to remove dust. Keeping the fan blades clean will reduce noise and improve the capacity and efficiency of the heating system.

Pump

The circulating pump is water lubricated and should require no regular maintenance. A cycle timer is available to exercise the pump even during prolonged periods of no heat to avoid seizing from long idle periods.

TROUBLESHOOTING

Also refer to the controls troubleshooting guide.

Thermostat Call Error

Thermostat calls are displayed on the 8_gang relay board. ANY valid heating call will be illuminated as well as the pump LED. Likewise, ANY valid cooling call will illuminate as well as AIR_COND LED.

If both Z1_HEAT and Z2_COOL are on at the same time, there is a thermostat error. Check wiring and that the thermostat is set as a regular heat/cool and not heat pump mode.

Calls on thermostats two, three and four are ignored if the air handler system (through zone one) has not switched over to the same season. For example, if zone one is in heating mode, any cooling call on zones 2, 3 or 4 are ignored and Z2_CALL, Z3_CALL and Z4_CALL will not illuminate. If the air handler does not run when zones two, three or four are calling, activate the primary zone briefly (5 seconds) to set the air handler in heating or cooling mode. Note that some thermostats have a delay (typically five minutes) before they will start the air handler in cooling the first time.

Relay failure – a 24vac DPDT relay acts as a latching relay for zones 2 and 3 to prevent incorrect thermostat calls from reaching the control. A second relay may be present for zones 4 and 5.

Wrong Zones Operating

Change the damper wires on the terminal block. Refer to the labels on the thermostat wires and colour code at the damper connections.

Pump does not run

The pump is activated by a 12vdc DPDT relay powered by the control. One side runs the pump (120vac) and the other side is 24vac to the 8 gang relay LED. The 8 gang relay provides a dry contact (TT) for a boiler. If the PUMP LED is illuminated but the pump does not run, the issue is the pump.

- Seized due to lime build-up; clean or replace
- Air bound (re-purge)
- Valves closed in error

Second Stage Air Conditioning

Second stage air conditioning is activated by a 12vdc DPDT relay powered by the control. Only one set of contacts is used to provide 24vac to the air conditioner second stage. First stage is driven directly from the control.

Insufficient or no heat

- Plugged air filter or coil. Refer to *Maintenance* section for filter care and coil cleaning.
- Air in heating loop; purge system.
- Inlet and outlet connections to air handler backwards; reverse connections.
- Water heater supply tube (dip tube) is restricted or damaged; check and/or replace.
- Supply water temperature set too low or not calibrated properly; check water temperature. In the case of water heater; If the temperature has been set low because of homeowner preference, it may be necessary to install an anti-scald valve to control the faucet temperature and raise the operating temperature of the water heater.
- Restrictions in heating loop; remove restrictions, check valve stuck, isolation valves too restrictive, left partially closed after purging or closed valve.
- Water heater supply temperature is unstable. Check water heater setting and temperature sensors for good contact on coil headers.

Cold water at hot faucet

When heat source is a water heater, the most probable cause is reverse flow through the heating loop from a stuck check valve; repair or replace valve.

Fan runs for cooling but not heating

Room thermostat may be connected improperly. Refer to *Electrical* section or wiring schematic on air handler for proper installation.

Heating during Standby Mode

Probable cause is thermal siphoning. See check valve description for details; repair or replace check valve. Check elevation of air handler above water heater to see if motorized valve required for positive shut-off.

ZONE COMFORT ISTAT6 Air Handler Parts & Accessory List

Part No.	Description	ZC24, ZC30, ZCT24, ZCT30	ZC36, ZCT36	ZC42, ZCT42	ZC48, ZC60, ZCT48, ZCT60	ZC100
UC18203	Hot Water Coil – 20”x18”	S	S	S	S	
UC18203ASS	Coil assembly c/w pump-18x20	S	S	S	S	
UCA100	Hot Water Coil – Dual 18x20					S
GUPS15-58RU	Pump-Grundfos	S	S	S	S	
GUPS26-99BFC	Pump-Grundfos c/w check					S
XED008	8in. motorized damper	S	S			
XED010	10in. motorized damper			S	S	S
XELH620	Wire Harness - power	S	S	S	S	S
XELK710	EVO ECM motor speed control	S	S	S	S	S
XELK711	Motor speed cable	S	S	S	S	S
XELK715	8 Gang Relay Board	S	S	S	S	S
XELK721	10k Thermister	S	S	S	S	S
XELK725	Remote monitoring gateway	O	O	O	O	O
XELK740	iStat6 Programmable control	S	S	S	S	S
XELR012DC	Relay 12vdc DPDT	S	S	S	S	S
XELR024DPDT	Relay 24VAC DPDT	S	S	S	S	S
XELT002	Transformer 24VAC, 40 VA	S	S	S	S	S
XELD002	Door interlock switch	S	S	S	S	S
XECM03E	EC Blower motor -- -1/3 HP	S				
XECM04E	EC Blower motor -- -1/2 HP	A	S	S		
XECM06E	EC Blower motor -- -3/4 HP				S	S
XBLF108	Blower – 10x8 DD	S	S	S		
XBLF128T	Blower – 12x8T DD				S	S
CPVA06	Valve Assembly – ¾” full port sweat ball valves plus drain	O	O	O	O	

S=Standard, A=Alternate, O=Option

Contact Vortex for blower/control assemblies or cabinet parts.

Product Warranty

This product is warranted by Vortex Source Systems to be free from defects in materials and workmanship that affect product performance under normal use and maintenance within the applicable periods specified below. Replacements furnished will carry only the un-expired portion of the original warranty.

Two-Year Parts

Vortex Source Systems will provide replacement parts for ANY part that fail within two years of purchase, subject to the **terms** below.

Five-Year Parts

Vortex Source systems will provide replacement parts for any heating coils, cooling coils, cabinetry and piping that fail within five years of purchase, subject to the **terms** below.

Terms

- Reasonable proof of original purchase date must be provided in order to establish the effective date of the warranty, failing which, the effective date will be based on the date of manufacture plus thirty days.
  The warranty does not cover failure or damages caused by:
  - improper installation or operation
  - accident, abuse or alteration
  - operation of device at temperatures or pressures outside of the rated capacities
  - lime or scale deposits
  - corrosive operating environment
  - equipment moved from original installation location
- Replacements furnished under this warranty will be F.O.B. Vortex Source Systems product distribution points in the United States and Canada. They will be invoiced at regular prices. The account will be credited the full amount when the defective part is received by Vortex, examined and approved as a valid warranty.
- Warranty applies to the original purchaser, but may be transferred to another owner provided the equipment is not moved from the original installation site.
- This warranty does not apply to labour, freight or any other cost associated with the service repair or operation of the product.
- Vortex shall not be liable for any direct, special, incidental or consequential damages caused by the use, misuse, or inability to use this product.
- Vortex is under no legal obligations to rectify, including but not limited to, lost profits, downtime, good will, damages to, or replacement of equipment and property
- Purchaser assumes all risk and liability of loss, damage or injury to purchaser and purchaser's property and to others and their property arising out of the use, misuse or inability to use this product.